



ATTORNEY GENERAL OF MISSOURI

ERIC SCHMITT

April 26, 2021

Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

**Re: Comment on the Use of the Social Cost of Carbon (c6, c7)
FERC NOI, Docket Number PL 18-1-000 C**

Dear Commissioners,

We, the undersigned Attorneys General of 22 States, provide the following comment in response to questions C6 and C7 of the Federal Energy Regulatory Commission's February 24, 2021 request for public comment entitled "Certification of New Interstate Natural Gas Facilities," Docket No. PL 18-1-000, 86 Fed. Reg. 11,268, 11,272.

Question C6 asks whether "the NGA, NEPA, or other federal statute authorize or mandate the use of Social Cost of Carbon (SCC) analysis by the Commission in its consideration of certificate applications," and if so, how such a federal statute does so.¹ The answer to this question is no. Neither the Natural Gas Act, NEPA, nor any other federal statute authorizes FERC to employ the "Social Cost of Carbon" analysis in consideration of certification applications.

Question C7 asks: "[i]f the Commission chooses to use the SCC tool, how could it be used to determine whether a proposed project is required by the public convenience and necessity? How would the Commission determine the appropriate discount rate to use?"² The answer to this

¹ In its entirety, the question asks: "C6. Does the NGA, NEPA, or other federal statute authorize or mandate the use of Social Cost of Carbon (SCC) analysis by the Commission in its consideration of certificate applications? If so, how does the statute direct or authorize the Commission to use SCC? Does the statute set forth specific metrics or quantitative analyses that the Commission must or may use and/or specific findings of fact the Commission must or may make with regard to SCC analysis of a certificate application? Does the statute set forth specific remedies the Commission must or may implement based on specific SCC findings of fact?" 86 Fed. Reg. 11,272.

² In its entirety, the question asks: "C7. If the Commission chooses to use the SCC tool, how could it be used to determine whether a proposed project is required by the public convenience and necessity? How would the Commission determine the appropriate discount rate to use? Should the Commission consider multiple discount rates or one discount rate? Please provide support for each option. How could the Commission use the SCC tool in the weighing of the costs versus benefits of a proposed project? How could the Commission acquire complete information to appropriately quantify all of the monetized costs/negative impacts and monetized benefits of a proposed project? Should the Commission use the tool to determine whether a project has significant effects on climate? If so, how could the Commission connect the SCC estimate with the actual effects of the project? What level of cost would be significant and why?"

question is that, as currently formulated, the “Social Cost of Carbon is a scientifically flawed,” unreliable analysis, which involves speculative projections and naked policy judgments that have an outsize impact on the dollar values generated by its Integrated Assessment Models (IAMs). The selection of a discount rate, in particular, involves not science but a legislative judgment that Congress has not delegated to the Commission.

The Commission has previously and correctly recognized that this is a fatally-flawed concept when it refused “to use ‘social cost of carbon’ analysis or a similar analytical tool to analyze the environmental impacts of greenhouse gas emissions from the construction and operation of the converted [natural gas] facilities.” *EarthReports, Inc. v. Fed. Energy Regul. Comm’n*, 828 F.3d 949, 956 (D.C. Cir. 2016). The Commission did so because it concluded that the SCC would not be “appropriate or informative” due to three factors: “the lack of consensus on the appropriate discount rate leads to significant variation in output,” the SCC “tool does not measure the actual incremental impacts of a project on the environment,” and “there are no established criteria identifying the monetized values that are to be considered significant for NEPA purposes.” *Id.* (internal quotation marks omitted). The Commission further observed that “there is no standard methodology to determine how a project’s incremental contribution to [greenhouse gas emissions] would result in physical effects on the environment, either locally or globally.” *Id.* The D.C. Circuit upheld the Commission’s reasoning and decision on this point. *Id.* All these concerns remain true today. FERC should not rely on “Social Cost of Carbon” analysis in its certification decisions or any other area.

I. In the Natural Gas Act, Congress Did Not Delegate to the Commission the Authority to Dictate the “Social Cost of Carbon” in Any Area of Its Regulatory Authority.

The decision to use a “Social Cost of Carbon” analysis in federal agency energy policy is one of “vast economic and political significance.” *Util. Air Regul. Grp. v. EPA*, 573 U.S. 302, 324 (2014). The “Social Cost of Carbon” analysis would require federal agencies to agree with speculative predictions based on flawed assumptions about the future global impact of global warming hundreds of years into the future, and then project these costs into federal rulemaking and other agency actions, imposing hundreds of billions or trillions of dollars in regulatory costs on the U.S. economy in future years and decades. It is well-established that Congress must speak clearly if it intends to delegate policy decisions of enormous practical importance to federal agencies. The Supreme Court “expect[s] Congress to speak clearly if it wishes to assign to an agency decisions of vast ‘economic and political significance.’” *Util. Air*, 573 U.S. at 324. Congress “does not alter the fundamental details of a regulatory scheme in vague terms or ancillary provisions—it does not, one might say, hide elephants in mouseholes.” *Whitman v. Am. Trucking Ass’ns*, 531 U.S. 457, 468 (2001). A delegation of this magnitude requires an exceptionally clear statement from Congress, and the Natural Gas Act’s mandate to regulate natural gas production in the “public interest” does not supply such a clear statement. On the contrary, the text, structure, and enactment history of the NGA, and subsequent congressional enactments on the same topic, all confirm that the NGA did *not* purport to make such an extraordinary delegation of regulatory authority to the Commission.

In the Natural Gas Act, Congress “declared that the business of transporting and selling natural gas for ultimate distribution to the public is affected with a *public interest*, and that Federal regulation in matters relating to the transportation of natural gas and the sale thereof in interstate and foreign commerce is necessary in the *public interest*.” 15 U.S.C. § 717(a) (emphases added).

Congress also required the Commission to authorize the export of natural gas to foreign countries or the import of natural gas from foreign countries unless that action “will not be consistent with the public interest.” *Id.* § 717b(a). The Commission must also make a public interest finding to order a natural gas company to extend or improve its facilities, to establish connections to transportation facilities, and to sell natural gas to local distributors. *Id.* § 717f(a).

Although the “public interest” is central to FERC’s responsibilities, Congress did not define it—but Congress certainly never stated that it was an invitation to FERC to dictate a global-warming policy for the United States. The Supreme Court’s use of “public interest” in case law contemporaneous to the Federal Power and Water Act’s passage (another of FERC’s organic statutes) provides powerful evidence of its meaning:

Businesses said to be clothed with a public interest justifying some public regulation may be divided into three classes:

(1) Those which are carried on under the authority of a public grant of privileges which either expressly or impliedly imposes the affirmative duty of rendering a public service demanded by any member of the public. Such are the railroads, other common carriers and public utilities.

(2) Certain occupations, regarded as exceptional, the public interest attaching to which, recognized from earliest times, has survived the period of arbitrary laws by Parliament or colonial Legislatures for regulating all trades and callings. Such are those of the keepers of inns, cabs, and gristmills.

(3) Businesses which, though not public at their inception, may be fairly said to have risen to be such and have become subject in consequence to some government regulation. They have come to hold such a peculiar relation to the public that this is superimposed upon them.

Charles Wolff Packing Co. v. Ct. of Indus. Rels. of State of Kansas, 262 U.S. 522, 535 (1923) (citations omitted). Writing for the Court in *Charles Wolff Packing*, Chief Justice Taft explained:

To say that a business is clothed with a public interest is not to import that the public may take over its entire management and run it at the expense of the owner. The extent to which regulation may reasonably go varies with different kinds of business. The regulation of rates to avoid monopoly is one thing. The regulation of wages is another. A business may be of such character that only the first is permissible, while another may involve such a possible danger of monopoly on the one hand, and such disaster from stoppage on the other, that both come within the public concern and power of regulation.

Id. at 539.

On the NGA, the D.C. Circuit specifically cautioned that the “broad public interest standards in FERC’s enabling legislation are limited to the purposes that Congress had in mind when it enacted this legislation.” *Pub. Utilities Comm’n of State of Cal. v. FERC*, 900 F.2d 269, 281 (D.C. Cir. 1990) (quotations omitted). “This rule helps confine an agency’s authorization to those areas in which the agency fairly may be said to have expertise.” *Id.*

The Supreme Court has also explained that FERC’s “public interest” standard “is not a broad license to promote the general public welfare.” *Nat’l Ass’n for Advancement of Colored*

People v. Fed. Power Comm'n, 425 U.S. 662, 669 (1976) (“*NAACP*”). “[T]o give content and meaning to the words ‘public interest’ as used in the Power and Gas Acts, it is necessary to look to the purposes for which the Acts were adopted.” *Id.* “[I]t is clear that the principal purpose of [the Gas and Power] Acts was *to encourage the orderly development of plentiful supplies of electricity and natural gas at reasonable prices.*” *Id.* at 669–70 (emphasis added). Needless to say, the “Social Cost of Carbon” analysis is not a method of “encourage[ing] the orderly development of plentiful supplies of electricity and natural gas at reasonable prices,” *id.*—if anything, it is the exact opposite.

In addition to this primary purpose, the Supreme Court has recognized that certain subsidiary interests grant the Commission “authority to consider conservation, environmental, and antitrust questions.” *NAACP*, 425 U.S. at 670. But the proposition that the Commission has power to consider conservation and environmental questions stems from *Udall v. Fed. Power Comm'n*, 387 U.S. 428, 448–49 (1967). That case did not involve the certification of natural gas facilities; instead it addressed a question under the Federal Water Power Act of 1920 as amended by the Federal Power Act. *Udall*, 387 U.S. at 448–49. Specifically, it asked whether the Commission properly found that certain hydroelectric improvements were “desirable and justified in the public interest for the purpose of improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce.” *Id.* (quoting 16 U.S.C. § 797(e)). The Court overturned the new dam’s license because the Federal Water Power Act’s text required considering “recreational purposes” including the 1965 Anadromous Fish Act showing that “Congress is greatly concerned with the depletion of these fish resources ‘from water resources developments and other causes.’” *Id.* at 438; *id.* at 440 (“Fishing is obviously one recreational use of the river.”). The Natural Gas Act contains no such language.

Congress’s subsequent actions further show that the “public interest” in the NGA is concerned with keeping natural gas widely available and affordable. In the Natural Gas Policy Act of 1978, “Congress enacted forms of field price deregulation designed to rely upon competition, rather than regulation, to keep field prices low.” *Oneok, Inc. v. Learjet, Inc.*, 575 U.S. 373, 380 (2015). When private actors manipulated price information that “had helped raise ‘to extraordinary levels’ the prices of both jurisdictional sales ... and nonjurisdictional direct sales to ultimate consumers,” *Oneok, Inc.*, 575 U.S. at 382, Congress prohibited “any manipulative or deceptive device or contrivance” contrary to the rules the “Commission may prescribe as necessary in the public interest or for the protection of natural gas ratepayers,” 15 U.S.C. § 717c-1, 119 Stat. 691 (2005). All these actions affirm that the “public interest” to which Congress referred in the NGA is ensuring plentiful natural gas at reasonable rates.

Utilizing the SCC values and social costs of other greenhouse gases is contrary to this statutory public interest, and therefore using it would be in excess of FERC’s authority. *See Bowen v. Georgetown Univ. Hosp.*, 488 U.S. 204, 208 (1988) (“It is axiomatic that an administrative agency’s power to promulgate legislative regulations is limited to the authority delegated by Congress.”). As explained in Executive Order 13990, “[t]he ‘social cost of carbon’ (SCC), ‘social cost of nitrous oxide’ (SCN), and ‘social cost of methane’ (SCM) are estimates of the monetized damages associated with incremental increases in greenhouse gas emissions.” 86 F.R. 7040 (Jan. 25, 2021). These are allegedly “global damages.” *Id.* According to the previous federal Interagency Working Group, “[t]he SC-CO₂ is the monetized damages associated with an incremental increase in carbon emissions in a given year. It is intended to include (but is not limited to) changes in net agricultural productivity, human health, property damages from increased flood risk, and the value of ecosystem services due to climate change.” Interagency

Working Group on the Social Cost of Greenhouse Gases, *2016 Technical Support Document: Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis*, at 3 (Aug. 2016) (“2016 TSD”). In other words, it is a sweeping, highly speculative analysis whose entire purpose is to inflate the expected costs of natural gas production and thus restrict supply and increase prices of natural gas. That objective is not only not authorized by Congress but contrary to its clearly stated directives and objectives under the NGA.

Nothing in Section 7 of the NGA contemplates considering any of these speculative damages with the necessity of any particular project. The text of Section 7 applies to a “natural-gas company or person” “subject to the jurisdiction of the Commission.” 15 U.S.C. § 717(f). The jurisdiction of the Commission extends to the transportation of natural gas and the sale in interstate and foreign commerce in the “public interest,” 15 U.S.C. § 717(a), but the statute makes clear that this foreign commerce power is limited to “the importation or exportation of natural gas in foreign commerce,” *id.* § 717(b). To the extent that a project does not involve the importation or exportation of natural gas in foreign commerce, the Commission should observe the presumption against extraterritoriality when interpreting what factors to include. Courts generally limit the application of statutes to domestic applications without a clear statement from Congress. *RJR Nabisco, Inc. v. Eur. Cmty.*, 136 S. Ct. 2090, 2100 (2016). This recognizes “the more prosaic commonsense notion that Congress generally legislates with domestic concerns in mind.” *Id.* (quotations omitted). Yet, contrary to this presumption, use of the SCC values would consider putative *global* costs of any natural gas production for hundreds of years into the future.

Using SCC values in discrete agency decision making or in the development of regulations is a one-way ratchet for artificially increasing the cost of supplying natural gas, generally known as methane. It is based on highly speculative assumptions and scientifically unreliable, policy-laden judgments. According to the latest Interagency Working Group (Working Group), the SCC (at a 3% discount rate) in 2020, is \$51 per metric ton of carbon dioxide (mtCO₂), and the SCM (at a 3% discount rate) in 2020 is \$1500 per metric ton of methane (mtCH₄). Interagency Working Group on the Social Cost of Greenhouse Gases, *2021 Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990*, at 24 (Feb. 2021) (“2021 TSD”). And these numbers only grow each year. *Id.* These global damages include, among other things, conjectural future impacts on human health worldwide (such as malaria, dengue fever, diarrhea, and cardiovascular and respiratory mortality), the costs of sea level rise (such as the value of lost land, the cost of protection from sea level rise, and resettling human populations), and damages due to extreme weather events. 2010 TSD at 5–8. They also include speculative predictions about future international conflicts, human migrations, technological developments, and global mitigation efforts for hundreds of years into the future. *See id.* These putative damages are far afield from protecting consumers from potentially monopolistic tendencies of interstate pipelines and ensuring that natural gas continues to be plentiful and affordable. To the contrary, the one-way ratchet imposed through the use of these values is intended to *restrict* availability of natural gas and *drive up* its cost. They also have no connection with individual projects and the case-by-case analysis required by permitting decisions.

As a federal agency, FERC is a “creature of statute,” having “no constitutional or common law existence or authority, but only those authorities conferred upon it by Congress.” *Atl. City Elec. Co. v. FERC*, 295 F.3d 1, 8 (D.C. Cir. 2002). FERC’s regulatory jurisdiction is limited to the public interest, which has long been recognized as “promot[ing] the orderly production of plentiful supplies of electric energy and natural gas at just and reasonable rates.” *NAACP*, 425 U.S. at 670. In the NGA, Congress did not vest FERC with the authority of an international

commission to mitigate global climate change, and certainly no statute contains a “clear” statement of such an extraordinary delegation of authority. *FDA v. Brown & Williamson Tobacco Corp.*, 529 U.S. 120, 160 (2000) (“Congress could not have intended to delegate a decision of such economic and political significance to an agency in so cryptic a fashion.”). Utilizing the SCC or SCM is not authorized under the NGA because it would only serve to increase costs (whether regulatory burdens or other costs) based on speculation about future global damages, instead of rendering natural gas abundant and affordable.

II. NEPA Does Not Mandate or Permit FERC to Use the SCC for Pipeline Certifications.

Likewise, NEPA does not mandate or permit FERC to use the SCC for pipeline certifications. Like the NGA, NEPA does not contain any clear statement of Congress delegating authority to FERC to anticipate and mitigate global climate change under the aegis of promoting abundant and affordable natural gas. Indeed, as noted above, the Commission previously rejected the use of the SCC values under NEPA, and the only change to the SCC since the Commission found it “inadequately accurate to warrant inclusion under NEPA,” *EarthReports, Inc.*, 828 F.3d at 956, is that the SCC values and their methodology have become even more outdated and flawed. As the 2021 TSD openly admits, there is still no consensus on the appropriate discount rate, 2021 TSD at 17, and the SCC “does not measure the actual incremental impacts of a project on the environment, and there are no established criteria identifying the monetized values that are to be considered significant for NEPA purposes.” *EarthReports, Inc.*, 828 F.3d at 956.

In general, NEPA “require[s] that agencies take a ‘hard look’ at environmental consequences.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350 (1989). NEPA compels agencies to consider all environmental effects likely to result from the project under review, but it does not dictate particular decisional outcomes. *Id.* But NEPA requires “a reasonably close causal relationship” between the environmental effect and the alleged cause” akin to proximate cause. *Pub. Citizen*, 541 U.S. at 767. Relevant CEQ NEPA regulations once defined effects as both direct and indirect and required agencies to look at the “cumulative effects” considering “effect of the current project along with any other past, present or likely future actions in the same geographic area as the project under review,” *Sierra Club v. FERC*, 827 F.3d 36, 50 (D.C. Cir. 2016). But, as the Commission is aware, CEQ has issued revisions to its NEPA regulations to “simplify the definition of effects by striking the specific references to direct, indirect, and cumulative effects and providing clarity on the bounds of effects consistent with the Supreme Court’s holding in *Public Citizen*.” CEQ, *Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act*, 85 Fed. Reg. 43,304, 43,375 (July 16, 2020). CEQ “explains that agencies should not consider effects that are ‘remote in time, geographically remote, or the result of a lengthy causal chain.’” *Qualifying Facility Rates & Requirements Implementation Issues Under the Pub. Util. Regul. Pol’y Act of 1978*, 173 FERC ¶ 61158 n.790 (2020) (quoting *id.*). Instead, “[u]nder this standard, the mere fact that an effect might not occur ‘but for’ the project is not sufficient to trigger a NEPA analysis; rather, there must be a ‘reasonably close causal relationship’ between the proposed action and the effect, ‘analogous to proximate cause in tort law.’” *Id.* Additionally, the Commission’s “regulations provide that ‘[it] will comply with the regulations of the Council on Environmental Quality except where those regulations are inconsistent with the statutory requirements of the Commission.’” *Certification of New Interstate Nat. Gas Facilities*, 174 FERC ¶ 61125 (2021) (quoting 18 C.F.R. § 380.1).

NEPA does not authorize the Commission to use the SCC values because NEPA’s hard look requirement and proximate cause standard does not permit agencies to rely on speculative conclusions or conclusions that the agency knows reflect substandard and outdated science. The SCC contains *both*. The SCC’s methodology claims to measure and monetize indirect effects that are not “reasonably foreseeable” from the release of carbon dioxide by a particular project by including global damages that run into the *year 2300*. It further relies on methodologies that have no empirical basis and lack scientific rigor. Indeed, the Commission has already made specific factual findings rejecting the propriety of using SCC values in environmental review. *See Dominion Cove Point Lng, Lp*, 151 FERC ¶ 61095, 61635 (2015) (“While the tool may be useful for rulemakings or comparing alternatives using cost-benefit analyses where the same discount rate is consistently applied, it is not appropriate for estimating a specific project’s impacts or informing our analysis under NEPA.”); *Dominion Cove Point Lng, Lp*, 148 FERC ¶ 61244, 62509 (2014) (“The EA explains that there is no standard methodology to determine how a project’s incremental contribution to GHGs would result in physical effects on the environment, either locally or globally. We agree with the EA’s determination that because we cannot determine the project’s incremental physical impacts on climate change, it is not possible to determine whether or not the project’s contribution to cumulative impacts on climate change will be significant.”). Use of the SCC analysis as an agency tool for carrying out its statutory functions has not improved since these findings and has become more obsolete. There can be no justification for relying upon it now. *See FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009) (agency must “provide a more detailed justification ... when, for example, its new policy rests upon factual findings that contradict those which underlay its prior policy”). Moreover, the Commission’s longstanding refusal to consider SCC values in carrying out its statutory duties has “engendered serious reliance interests” among the States and industry that cannot be disregarded in favor of the obsolete and arbitrary SCC. *Dep’t of Homeland Sec. v. Regents of the Univ. of Cal.*, 140 S. Ct. 1891, 1913 (2020) (quoting *Encino Motorcars, LLC v. Navarro*, 136 S. Ct. 2117, 2126 (2016)).

a. Understanding the SCC requires studying the IAMs.

The SCC is not based on reliable methods or sound empirical science. As currently formulated, the SCC is based, in large part, on the numbers and analytical methods the Obama-era Interagency Working Group developed in 2010 and updated intermittently. The heart of the SCC is a probabilistic Monte Carlo analysis of three Integrated Assessment Models (IAMs): Dynamic Integrated Climate and Economy (DICE) 2010, Climate Framework for Uncertainty, Negotiation, and Distribution (FUND) 3.8; and Policy Analysis of the Greenhouse Gas Effect (PAGE) 2009. 2010 TSD, at 5. To come up with the SCC, the Working Group runs each IAM 10,000 times under five scenarios (discussed below as the Stanford Energy Modeling Forum Exercises (EMF-22)) through the year 2300. These results are equally weighted and averaged to report four sets of values (three discount rates, and a 95th percentile damage distribution with a three percent discount rate). So the final SCC is the average of all these simulations and is wholly dependent on what values the individual IAMs generate.

Each IAM “combine[s] climate processes, economic growth, and feedbacks between the climate and the global economy into a single modeling framework.” *Id.* “The three IAMs translate emissions into changes in atmospheric greenhouse concentrations, atmospheric concentrations into changes in temperature, and changes in temperature into economic damages.” *Id.* But they do not do it uniformly. For each, part of the damages considers the putative effect of greenhouse gas

emissions on different categories of market and non-market goods and services—for example, agriculture, sea-level rise (which causes land lost or costs to protect land), human health (which covers things like how emissions affect disease propagation or respiratory health), and extreme weather. *See id.* at 6–8. Likewise, how each model handles human adaptation—*i.e.*, how people and nations respond as climate events change based on greenhouse gas emissions—varies among the three IAMs. *See id.*

Underlying each model is a set of variables whose values are inherently policy-driven, subjective, or both. For example, “[t]he emissions projections”—which drives the damages number—“are based on specified socio-economic (GDP and population) pathways.” *Id.* To estimate those, the 2010-version of the Working Group decided to use five out of the ten models used in the Stanford Energy Modeling Forum Exercise (EMF-22). *See id.* at 15. Those models project future greenhouse gas emissions, GDP, and population growth. *Id.* at 15–17. And four of the five chosen models expect “Business as Usual” government policies—scenarios where governments take no action to curb emissions. *Id.*

Another variable is the “equilibrium climate sensitivity (ECS)” input. *See id.* at 12. ECS is “the long-term increase in the annual global-average surface temperature from a doubling of atmospheric CO₂ concentration relative to pre-industrial levels (or stabilization at a concentration of approximately 550 parts per million (ppm)).” *Id.* To set the ECS, the 2010 analysis does not use one value; it uses a distribution of values, derived from the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). *See id.* at 13, 24. According to the 2010 Working Group, this model was “the only one . . . that is based on a theoretical understanding of the response of the climate system to increased greenhouse gas concentrations,” and the 2010 Working Group believed it “better reflects the IPCC judgment” that temperature increases of more than 4.5 degrees Celsius may occur. *Id.* at 13–14. Similarly, the SCC analysis chose to model damages from greenhouse gas emissions out through the year 2300, 100 years beyond the original PAGE model’s end date and 200 years past the EMF-22 models’ last projections for population growth, GDP, and greenhouse gas emission trajectories for an additional 100 years. *See id.* at 25. The Working Group simply supplied their own assumptions and values to fill in these gaps. *Id.*

b. Global damages are not reasonably foreseeable and do not have a close causal relationship to any project.

The SCC’s damages numbers monetize predicted global damages from the emission of an additional ton of carbon dioxide. These numbers include speculative projections of human health impacts in other countries from increased dengue fever, malaria, diarrhea, and cardiovascular and respiratory mortality and the costs of sea-level rise such as the value of lost land, the cost of protection (*e.g.*, sea walls), and resettling human populations. 2010 TSD 5–9. They include entirely speculative predictions about future human migration, international conflicts, and technological changes for hundreds of years into the future. *Id.* But these damages are not traceable to any carbon dioxide emitted from any particular project. “Some effects that are ‘caused by’ a change in the physical environment in the sense of ‘but for’ causation, will nonetheless not fall within § 102 because the causal chain is too attenuated.” *Metro. Edison Co. v. People Against Nuclear Energy*, 460 U.S. 766, 774 (1983). This causal chain is far too attenuated, as shown by the fact that it is even uncertain whether an emission saved from one project will have any effect on these damages. Nor can a cumulative analysis save this causality problem because global impacts are certainly not a project’s “same geographic region.” *Sierra Club*, 827 F.3d at 50.

The 2021 Working Group cited a number of reasons why it believes global damages are appropriate: “GHG emissions contribute to damages around the world regardless of where they are emitted”; global impacts “will have a direct impact on [overseas] U.S. citizens and the investment returns on those assets owned by U.S. citizens and residents”; global issues “impact the welfare of individuals and firms that reside in the United States through their effect on international markets, trade, tourism, and other activities”; and “allow[ing] the U.S. to continue to actively encourage other nations, including emerging major economies, to take significant steps to reduce emissions.” 2021 TSD, at 15–16. But none of these reasons is directly linked to any particular project, and Congress, when it enacted the NGA, NEPA, EPCA, OCSLA, MLA, and other energy-related statutes supporting the development and use of domestic sources of energy, certainly was aware of international trade, tourism, and the existence of U.S. citizens and assets abroad.

The focus on global impacts makes an enormous difference on the projected costs that the SCC tool generates. Most recently, the domestic value for the social cost of carbon was roughly \$7—seven times less than the 2021 Working Group’s interim social cost of carbon. Similarly, the domestic social cost of methane was roughly \$55—27 times less than the 2021 Working Group’s interim social cost of methane.³ But these global impacts are not the sort of costs that Congress authorized the Commission to consider under NEPA, for the reasons stated above. *Cf.* 42 U.S.C. §4331(b)(2) (directing agencies to “assure for *all Americans* safe, healthful, productive, and esthetically and culturally pleasing surroundings”) (emphasis added). And even the domestic values are likely too broad to be in the same “geographic region” to warrant consideration under a NEPA analysis.

c. Damages from the year 2300 are too speculative, attenuated, and arbitrary to survive hard-look review under NEPA.

The SCC’s centuries-long time horizon further dilutes any perceptible causal chain and reflects an arbitrary decision that has an outsize impact on the SCC. Purporting to predict global impacts 300 years into the future is an inherently speculative task—akin to predicting the invention of nuclear weapons and smart phones in the year 1721. And if the project had any non-speculative basis, the SCC’s time horizon was chosen arbitrarily and the Working Group injected their own assumptions into the models beyond their design.

The choice to run the models to year 2300 originated in the first TSD and occurred because “[m]any consider 2200 too short a time horizon because it *could miss* a significant fraction of damages under certain assumptions about the growth of marginal damages and discounting.” 2010 TSD at 25 (emphasis added). In other words, without going to the year 2300, the Working Group reasoned, there was a risk costs would be lower. Notably, the Working Group made this decision even though one of the IAMs and all of the EMF-22 climate scenarios ended before year 2300. To accomplish this task, the Working Group arbitrarily “adjusted” the PAGE Model because it was designed to end in the year 2200. *Id.* The EMF-22 models (the five climate scenarios) also did not have projections for GDP, population, and greenhouse gas emission trajectories after the year

³ See, e.g., Jean Chemnick, *Cost of Carbon Pollution Pegged at \$51 Per Ton*, SCIENTIFIC AMERICAN (March 1, 2021), <https://www.scientificamerican.com/article/cost-of-carbon-pollution-pegged-at-51-a-ton/#:~:text=Contributing%20to%20climate%20change%20is,to%20about%20%2451%20per%20ton.>

2100, so the Working Group also made those assumptions for the next 200 years that were used in all three IAMs. *Id.* In other words, it made up a model that would yield its pre-determined result.

The changes had the desired effect: the longer time horizon increased damages significantly. Declaration of Kevin Dayaratna ¶ 30 (attached as Exhibit A) (“Dayaratna Decl.”). This was a predictable change because “[t]he longer the horizon, the more years are summed into the damages and those years have greater and greater damages in a future that is difficult if not impossible to predict.” *Id.* ¶ 34. To illustrate this effect, when the DICE Model (at a 3 percent discount rate) is only run until the year 2150 (roughly half the Working Group’s time period) the damages are 13.43% to 20.28% less. *Id.* ¶ 35–36. Although categorized as uncertainty, those additional damages are based on assuming what will happen centuries into the future and reflect the Working Group’s assumptions for 200 years. It is virtually impossible to account for dynamic changes such as those caused by now commonplace technological innovations such as internet, smartphones, and GPS technology that were mere science fiction 300 years ago. *Id.* ¶ 29.

The SCC offers no justification why the IAMs were run to 2300 versus 2280 or an even 300 years to 2310. And if the reason is that damages were not fully accounted by the year 2100, the SCC does not explain how failing to run the FUND model through its designated end year of 3000 or the DICE model through its end year of 2595 fully accounts for the damages. Instead, the arbitrary selection of end-dates reflect a naked result-driven policy judgment.

d. The SCC’s choice of discount rates is also arbitrary and lacks a scientific basis.

This is another consequential policy choice that the Working Group admits “has a large influence on the present value of future damages” and “raises highly contested and exceedingly difficult questions of *science, economics, ethics, and law.*” 2021 TSD at 17 (emphasis added). The SCC notably *excludes* the use of the 7 percent discount rate that the longstanding guidance in the peer-reviewed OMB Circular A-4 requires for regulatory analysis. OMB recognized that a 7 percent discount rate measures the cost of government regulation displacing investment (it is what a government project must “earn” (pre-tax) to justify the cost, else it would have been better to invest in the market); and a 3 percent rate measures the opportunity cost of government regulation that displaces future consumption (for example, that a person considers \$1.03 tomorrow (post-tax) equal to a \$1.00 today). *See* OMB Circular A-4. The Working Group chose to use the consumption rate of return, alleging that it calculated the Social Cost of Carbon in terms of consumption. The Working Group, however, conceded that its analysis only works if it can convert “displaced investment . . . into a flow of consumption equivalents”—something it suggested it had yet to do fully. *See* 2021 TSD at 18; *see also id.* at 19 (needing “a more complete measure of costs, accounting for displacement of investment”).

To illustrate this influence, the average social cost of carbon in the FUND Model for 2020 goes from a range of \$21 to \$39, 2016 TSD App. A Table A3, to *negative* 37 cents. Dayaratna Decl. ¶ 23. Adjusted for inflation, the FUND Model at a 7 percent discount rate equals *negative* 45 cents. *Id.* This means that under a different discount rate, the social cost of emitting an extra ton of carbon becomes a *benefit*. *Id.* The average social cost of carbon in the DICE Model for 2020 goes from a range of \$28 to \$48, 2016 TSD App. A Table A2, to \$5.87 when the discount rate is changed to 7 percent. Dayaratna Decl. ¶ 22. Adjusted for inflation, the DICE Model at a 7 percent discount rate equals \$7.21. *Id.* Adjusted for inflation, the values for methane and nitrous oxide show similar sensitivity in the DICE Model for 2020 at the 7 percent rate are \$331.76 (methane) and \$2,312.44 (nitrous oxide). *Id.* ¶¶ 25–26.

In short, the selection of a discount rate has an enormous impact on the actual projected costs generated by the SCC tool. But this selection is not a scientific decision; even the 2021 Working Group admits that it “raises highly contested and exceedingly difficult questions of *science, economics, ethics, and law.*” 2021 TSD at 17. In fact, the 2021 Working Group’s arbitrary selection of discount rates – especially rates contrary to long-accepted pre-existing regulatory policy embodied in OMB Circular A-4 – constitutes a policy judgment that Congress did not delegate to any federal agency.

e. The SCC is based on outdated scenarios and ignores science without justification.

In at least three ways, the SCC relies on assumptions and science used in the IAMs that do “not reflect the tremendous increase in the scientific and economic understanding of climate-related damages that has occurred in the past decade.” 2021 TSD at 22; *id.* at 32. *First*, the Equilibrium Climate Sensitivity distribution (Roe and Baker (2006)) used in all the IAMs is out of date, and the Working Group does not explain why it has not considered newer ECSs. An “ECS is a distribution that probabilistically quantifies the earth’s temperature response to a doubling of carbon dioxide concentrations.” Dayaratna Decl. ¶ 39. For each IAM, the ECS shows the carbon dioxide impacts on climate, and the “[s]econdary effects, such as sea-level rise, all depend on a reliable ECS.” *Id.* The current ECS used is more than a decade old, and it vastly overstates the probability of high-end global warming compared to more recent distributions. *Id.* ¶ 40.

A number of more recent ECS distributions suggest lower probabilities of extreme global warming in response to higher carbon dioxide concentrations. *Id.* ¶ 41. Failing to consider these alternatives has a big impact on the SCC. Using newer ECS distributions, the average social cost of carbon (at the 3% discount rate in 2020 dollars) can be reduced by as much as 45% for the DICE Model and 80% for the FUND Model. Dayaratna Decl. ¶¶ 43–46. For example, the Lewis and Curry (2015) ECS that controls for observed ocean heat uptake efficiency causes the DICE Model’s values to go from \$46.43 to \$24.15 in 2020, \$55.47 to \$28.95 in 2030, \$65.43 to \$34.25 in 2040, and \$75.83 to \$39.94 in 2050. *Id.* ¶ 43. The FUND Model’s values are affected even more: \$23.75 to \$4.09 in 2020, \$26.76 to \$4.79 in 2030, \$29.93 to \$5.52 in 2040, and \$33.25 to \$6.25 in 2050. *Id.* ¶ 45. Instead of reviewing these alternatives, the 2016 and 2021 TSDs simply apply an ECS that is 15 years old and sorely outdated.

Second, four of the five EMF-22 scenarios “represent the modelers’ judgment of the most likely pathway *absent* mitigation policies to reduce greenhouse gas emissions, rather than the wider range of possible outcomes.” 2010 TSD at 16 (emphasis added). These four scenarios are hopelessly outdated. In addition to climate and emissions policies and rules in the last decade, President Biden announced “that America would aim to cut its greenhouse gas emissions 50 percent to 52 percent below 2005 levels by 2030.” Brad Plumer and Nadja Popovich, *The U.S. Has a New Climate Goal. How Does It Stack Up Globally?*, N.Y. TIMES (Apr. 22, 2021).⁴ Other nations similarly pledged to cut emissions compared to 2005 emissions: the EU nations by 51%, Britain by 63%, Canada by 45%, Japan by 44%, and Australia by 28%. *Id.* All of these countries have pledged to achieve zero net emissions by 2050. *Id.* And China, the world’s largest emitter

⁴ Available at <https://www.nytimes.com/interactive/2021/04/22/climate/new-climate-pledge.html?action=click&module=Spotlight&pgtype=Homepage>.

of greenhouse gases, has pledged that it will aim to get down to zero net emissions by 2060. *Id.* And in addition to pledges, the United States and the EU nations have all been decreasing their emissions. *Id.* In fact, the United States' recent reductions in carbon emissions arose in part to the *availability* of increased supplies of affordable natural gas. *See, e.g.,* U.S. Energy Information Authority, *U.S. Energy-Related Carbon Dioxide Emissions, 2019*.⁵ The SCC's continued use of the four BAU scenarios cannot be justified, and have been criticized as "not just badly out of date, but reflecting a set of fictional worlds." Roger Pielke Jr, *The Biden Administration Just Failed its First Science Integrity Test*, February 28, 2021 (available at <https://rogerpielkejr.substack.com/p/the-biden-administration-just-failed>).

Third, the SCC analysis fails to fairly account for agricultural benefits caused by increased carbon dioxide concentrations, such as increasing plants' internal water use efficiency and raising the rate of net photosynthesis. Only one IAM, the FUND model, includes some quantification of these benefits. Indeed, the DICE model as utilized by the Working Group explicitly presumes that *only* damages will result from more CO₂ in the atmosphere and there will be *no* benefits. Dayaratna Decl. ¶ 52. This limitation is arbitrary and only serves to overstate damages. For example, even using the outdated Roe Baker (2006) ECS distribution, the FUND Model (at a 3 percent discount rate) has a greater than 10 percent chance to generate a *negative* social cost of carbon each year through 2040. Dayaratna Decl. ¶ 49. Changing the discount rate to 7 percent raises that probability significantly. If an updated ECS distribution is used, there is a greater than 50 percent chance the social cost of carbon is negative through the year 2050. *Id.* ¶ 50–51. And there is good reason to believe that if the DICE Model was permitted to account for these benefits, then it would generate some negative values for the SCC as well. *Id.* ¶ 52.

These are three ways in that the SCC adheres to assumptions and data it knows is not accurate. The SCC's failure to explain why it should continue to use these assumptions that cause large swings in the results produced by the underlying IAMs fails even a cursory arbitrary and capricious review.

Dated: April 26, 2021

Respectfully submitted,



Eric S. Schmitt
Attorney General
STATE OF MISSOURI

⁵ Available at <https://bit.ly/3gG1kqF>.

Steve Marshall
Attorney General
STATE OF ALABAMA

Treg R. Taylor
Attorney General
STATE OF ALASKA

Mark Brnovich
Attorney General
STATE OF ARIZONA

Leslie Rutledge
Attorney General
STATE OF ARKANSAS

Christopher M. Carr
Attorney General
STATE OF GEORGIA

Theodore E. Rokita
Attorney General
STATE OF INDIANA

Derek Schmidt
Attorney General
STATE OF KANSAS

Daniel Cameron
Attorney General
STATE OF KENTUCKY

Jeff Landry
Attorney General
STATE OF LOUISIANA

Lynn Fitch
Attorney General
STATE OF MISSISSIPPI

Austin Knudsen
Attorney General
STATE OF MONTANA

Douglas J. Peterson
Attorney General
STATE OF NEBRASKA

Dave Yost
Attorney General
STATE OF OHIO

Mike Hunter
Attorney General
STATE OF OKLAHOMA

Alan Wilson
Attorney General
STATE OF SOUTH CAROLINA

Jason R. Ravensborg
Attorney General
STATE OF SOUTH DAKOTA

Herbert H. Slatery III
Attorney General & Reporter
STATE OF TENNESSEE

Ken Paxton
Attorney General
STATE OF TEXAS

Sean D. Reyes
Attorney General
STATE OF UTAH

Patrick Morrissey
Attorney General
STATE OF WEST VIRGINIA

Bridget Hill
Attorney General
STATE OF WYOMING